EXHIBIT 11

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF RHODE ISLAND

	)	
UNILOC USA, INC., and	)	
UNILOC SINGAPORE PRIVATE LIMITED	)	
	)	
Plaintiff,	)	
	)	
v.	)	**C.A. No. 03-cv-0440**
	)	
MICROSOFT CORPORATION	)	
	)	
Defendants.	)	
	)	

RULE 26(a) REPORT REGARDING DAMAGES
PREPARED BY PHILIP GREEN

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OPINION II – A HYPOTHETICAL NEGOTIATION BETWEEN UNILOC AND MICROSOFT FOR THE USE OF THE '216 PATENT WOULD HAVE OCCURRED IN EARLY 2001. THIS NEGOTIATION WOULD HAVE RESULTED IN A REASONABLE ROYALTY RATE OF $4.00 PER ACTIVATION. APPLYING THIS RATE TO MICROSOFT'S INFRINGING ACTIVATIONS RESULTS IN TOTAL REASONABLE ROYALTY DAMAGES OF $1.1 BILLION THROUGH DECEMBER 2011, EXCLUDING PREJUDGMENT INTEREST. 42

is designed for small to midsize organizations and businesses that have between 5 and 250+ desktop PCs.[12]

I understand that Microsoft's products sold through the Direct OEM sales channel do not require Microsoft's end customers to use the infringing Product Activation process, as these programs are "pre-activated" prior to sale. Similarly, I understand that many of Microsoft's larger customers are part of Microsoft's Volume Licensing Key ("VLK") program, which does not require end users to use the infringing Product Activation system. However, I understand that end customers that acquire Microsoft's programs through a System Builder OEM use the infringing Product Activation system. In addition, customers that purchase Microsoft's products through a VAR that are not part of the VLK program use the infringing Product Activation system, as do those customers that purchase Microsoft's products through the retail and online sales channel.

4. *Actual Financial Results & Segment Sales: FY 2001 – FY 2002*

For its fiscal years ending June 30, 2001 and June 30, 2002, Microsoft reported its revenues in four segments: Desktop and Enterprise Software & Services, Consumer Software, Services & Devices, Consumer Commerce Investments and Other. During this period, the Desktop and Enterprise Software and Services segment included desktop applications, such as Office, and Desktop platforms, such as Windows. It also included Enterprise software and services such as Windows NT. Consumer Software, Services & Devices included the Xbox video gaming system, MSN and PC and online games. Consumer Commerce included investments in websites such as Expedia. The Other segment included hardware sales and Microsoft Press.

For its fiscal years ending June 30, 2001 and 2002, Microsoft's revenues from desktop applications (such as Microsoft Office) amounted to $9.5 billion and $9.6 billion, respectively.[13] During the same periods its revenues from desktop platforms (such as Windows) amounted to $8.0 and $9.3 billion, respectively.[14]

In fiscal 2001, Microsoft's operating profits in its Desktop & Enterprise Software and Services segment amounted to $14.3 billion, or 62.8% of sales.[15] In fiscal 2002, Microsoft's operating profits in its Client, Server and Tools, and Information Worker segments totaled $13.8 billion, or 58.1% of sales.[16] These operating profits are between 14.5% and 18.5% greater than Microsoft's overall operating profits during these periods.[17]

5. *2001 Expectations for Microsoft's Financial Results*

In 2001, analysts at SG Cowen and Robertson Stephens expected that Microsoft's total revenues would grow at compound annual growth rates ("CAGR") of approximately 15% to 18% through

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[12] Microsoft Volume Licensing Comparison Chart: VLP_Interactive_Commercial_Final_April 07-1.pdf
[13] Microsoft Form 10-K for the fiscal year ending June 30, 2002, p. 12.
[14] Microsoft Form 10-K for the fiscal year ending June 30, 2002, p. 12.
[15] Exhibit D.
[16] Exhibit D.
[17] Exhibit D.

- Home and Entertainment – Includes Xbox and other PC games and TV platform products.

Exhibit C presents Microsoft's profit and loss statements from July 2002 through June 2011. This exhibit shows that during this period, Microsoft's total revenues amounted to nearly $455.5 billion. It earned operating profits on these sales of $161.9 billion, or 35.6% of sales.

Exhibit D presents Microsoft's operating profits by segment from July 2002 through June 2011. This exhibit shows that during this period, Microsoft's total revenues from segments containing products related to Product Activation amounted to $380.7 billion. These segments have reported operating profits of $221.8 billion, or 58.3% of sales.

Exhibit F presents Microsoft's revenues from sales of accused products from March 2001 through November 2009. This exhibit shows that during this period, Microsoft's total revenues from sales of accused products in the Retail and System Builder OEM channels amounted to $21.8 billion.

C. Software Piracy and Casual Copying

1. Piracy & Casual Copying of Software

When consumers "purchase" software, they are actually purchasing a license to use that software. The consumer does not "own" the underlying code or software; rather, they purchase the right to use the software under the terms of the license agreement provided by the manufacturer.[26] Microsoft describes software piracy as the unauthorized copying, reproduction, manufacture or use of software.[27]

In 1996, the Business Software Alliance ("BSA") estimated that more than 225 million business applications were pirated, with dollar losses totaling $11.2 billion.[28] According to an internal Microsoft memorandum prepared in July 1997, pirated copies accounted for nearly half of the new business software applications used worldwide.

According to industry estimates, in 1999 the global software industry experienced total annual losses due to software piracy of more than $12 billion.[29] In June 2002, this amount was estimated to be more than $11 billion.[30] The Business Software Alliance reported that from 2000 to 2001, worldwide software piracy rates rose from 37% to 40%.[31] This means that 37% to 40% of all software in the market was pirated. The remaining 60% to 63% of the software market was "paid for" by consumers and other end-users. For North America, the software piracy rate in 2001 was estimated at 26%, while total piracy losses were calculated to be $1.9 billion.[32]

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[26] MS-U 208509.
[27] MS-U 170298.
[28] MS-U 002956.
[29] MS-U 170298, MS-U 000452.
[30] MS-U 481214.
[31] "Global Piracy Rate Rises to 40 Percent," *InternetNews.com*, December 9, 2002.
[32] "Global Piracy Rate Rises to 40 Percent," *InternetNews.com*, December 9, 2002.

digest algorithm ("MD5") for Office products and the SHA-1 secure hash algorithm ("SHA-1") for Windows products....

The end result [of the MD5 and SHA-1 algorithms] is a "license digest," i.e. "a shortened fixed-bit output"…derived from the original message.

Microsoft encrypts this digest, and sends it along with the original data back to the user's computer. The software on the user's computer decrypts the message and recovers the "license digest." It then inputs the original data (i.e. the PID, HWID, and additional activation information) and enters it into the same MD5 or SHA-1 algorithm used by Microsoft's computers, resulting in a local "license digest." Microsoft's Product Activation software compares the local license digest and the remote license digest; if they match, the software product is activated. If they do not, the software returns to pre-Product Activation mode.

> 2. *Product Activation's Role and Effectiveness in Reducing Casual Copying and Increasing Microsoft's Revenues*

As discussed above, Microsoft estimated that casual copying of its software programs was causing billions of dollars in lost revenues every year. Implementing Product Activation was a direct response to recapture these lost revenues. Microsoft marketing materials describe Product Activation as "the key to increasing sales and reducing software piracy."[68] Specifically, Microsoft documents describe Product Activation's role and effectiveness in deterring casual copying, a form of piracy prevalent among small businesses and individuals.[69]

The impact of Product Action on increasing revenues in Microsoft's Open license and Retail channels is consistent with Product Activation's goal of reducing casual copying among small businesses (which often purchase through the Open channel) and individuals (who often purchase through the Retail channel). While Product Activation is not required for products sold in the Open license channel, this channel was expected to benefit from increased sales due to the inclusion of Product Activation in other sales channels. As explained by Ms. Susan Cole, Microsoft's Director of Licensing, prior to Product Activation many small businesses would purchase a single retail license and "copy it across [their] office," rather than purchasing an Open license for use across multiple computers in an office.[70] This type of casual copying was prevented by Product Activation. According to Ms. Cole:

> Because that behavior…was prohibited with activation, you couldn't take the retail and copy it, open license customers that should have been open license instead of pirates learned about open license and purchased open license.[71]

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[68] MS-U 098623.

[69] See, for example, MS-U 00346557, MS-U 946149, MS-U 481155, MS-U 211072 – MS-U 211085, MS-U 170298, MS-U 00365052 – MS-U 0036505, MS-U 006556 – MS-U 006595, MS-U 211304 – MS-U 211322, MS-U 00379171 – MS-U00379172, MS-U 018152 – MS-U 018173, MS-U 00428407 – MS-U 00428443, MS-U 520418 – MS-U 520428, MS-U 927074 – MS-U 927106, MS-U 014601 – MS-U 014631, MS-U 000451 – MS-U 000457, MS-U 490277 – MS-U 0490279, MS-U 00473546 – MS-U 00473550, MS-U 263695 – MS-U263700, MS-U 170194, MS-U 174521, MS-U 160949.

[70] Deposition of Susan Cole, August 30, 2004, pp. 58 – 59.

[71] Deposition of Susan Cole, August 30, 2004, pp. 58 – 59.

Other internal Microsoft correspondence confirms the impact that Product Activation had on Open license revenue growth. For example, in discussing the findings of the pilot program, a Microsoft employee explained that:

> The most striking effect has been in SORG [small organization] Open License revenue for Office which has doubled since the introduction of the LVP [license verification program—another name for Product Activation]. This surprised us but, [sic] through anecdotal information from distis [distributors] and our licensing hotline we believe we understand the effect.
>
> The scenario is this: A small business buys a copy of Office 2000 and attempts to load it on their multiple PCs in the office. They fail due to the Office Registration Wizard. Some of these businesses have called us to ask why they can't load it on multiple machines (confirming that there is a certain amount of genuine unawareness of software copyright laws). We explain the copyright and licensing requirements and recommend they purchase Open License to become compliant. However, the most prevalent situation is the the [sic] small business simply goes back to their reseller who explains the situation and recommends Open as the most cost effective way to purchase the additional licenses.
>
> Whilst there has also been an increase in FPP sales, the stronger increase has been in ROEM.[72]

i.   Early Analyses

Early planning documents suggest that Microsoft was anticipating revenue recoveries of at least "hundreds of millions of dollars" from the introduction of Product Activation in the system builder and retail (FPP) channels. For example:

- October 2000 – "Windows Product Activation Spec" Presentation – Prior to the launch of Product Activation, Microsoft prepared numerous documents outlining the operational aspects of the Product Activation system and the "business justification" for why it was being implemented. The first paragraph of this document states:

> According to Microsoft estimates, two billion dollars in revenue are lost each year due to piracy of operating systems through system builder abuses and consumer casual copying. In an effort to stem piracy of Windows in the retail and system builder channels, we will implement a new enforced product activation scheme with the release of Whistler.[73] (emphasis added)

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[72] MS-U 492617.

[73] MSI105531. This $2 billion amount reflects losses for Windows only, and does not include any losses from piracy of Microsoft's Office products.

This document shows that Microsoft implemented Product Activation to reduce its estimated $2 billion of annual lost Windows revenues due to software piracy. In addition, it described the "business justification" for Product Activation as:

> The overwhelming business justification for WPA is the potential to re-capture a fraction of the enormous revenue lost to piracy, especially in the System Builder and retail channels. It is impossible to determine the amount that would be regained, but <u>even only 10% translates into hundreds of millions of dollars in found revenue</u>.[74] (emphasis added)

ii.   The 1999 – 2000 Pilot Study

Much of Microsoft's analysis of the effectiveness of Product Activation is based on the results of the pilot study that began in June 1999. This pilot study was designed to test the effectiveness and impact of Product Activation prior to its worldwide launch across Microsoft's other product lines. For the pilot study, Microsoft implemented Product Activation in Microsoft Office for sales in its Retail (FPP) and System Builder channels in seven countries: Australia, China, Hong Kong, New Zealand, Brazil, Canada and the United States.[75] As of January 2001, Microsoft reported that over five million activation attempts had been made during the pilot study.[76]

Microsoft analyzed the results of this Pilot Study and concluded that there were revenue increases attributable to Product Activation.

In 2000 to early 2001, Microsoft found that Product Activation resulted in revenue growth of in excess of   in Retail and Open license revenues. For example:

- October 2000 – "Office Activation Wizard" Presentation – This presentation describes the results of the pilot study. Under the "highlights" of the pilot study, the presentation states that all seven countries experienced revenue increases after Product Activation was implemented. In addition, it states that all pilot countries experienced SORG (small organization) Retail and Open license revenue growth of   due to Product Activation.[77] Accordingly, this presentation indicates that Microsoft estimated that Product Activation was responsible for revenue increases of more than

- October 2000 – Internal Microsoft Correspondence – Internal Microsoft correspondence discussing the effectiveness of Product Activation on "increas[ing] Microsoft's revenue by reducing casual piracy" cites to the results of the pilot study. These documents state that "turning on this feature [Product Activation] in Office 2000 for some countries

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[74] MSI105540.

[75] MS-U 501845. For the United States and Canada, Product Activation was only included in the "academic channel" only. See MS-U 00905443.

[76] MS-U 00905443.

[77] MS-U 002400 – MS-U 002401. This 73% revenue growth was calculated by Microsoft as the difference in FPP and Open revenue growth from Q2 FY 2002 and Q2 FY 1999 of the pilot countries with Product Activation compared to "top tier" countries that did not have Product Activation. Specifically, pilot countries with Product Activation experienced   revenue growth, while the control group of "top tier" countries without Product Activation had revenue growth of

resulted in the _____ of FPP licenses in those countries over ones without mandatory registration a year after introduction….it was so successful that it was turned on in…the region with the most number of Office users."[78] Other internal Microsoft correspondence describing the results of the pilot study state that "after more than a year's worth of data" Product Activation has been "proven a success."[79] This correspondence also characterizes Product Activation as "the only feature I know of that has the potential to _____ of Office."[80]

- June 2000 – "Whistler Anti-Piracy" Presentation – In discussing implementing Product Activation in Windows XP, Microsoft described the Product Activation pilot study as showing a "large impact in SORGs [small organizations]."[81] This presentation also describes analyses of the pilot study performed by Microsoft and the "revenue impact" attributable to Product Activation.[82] According to the presentation, Microsoft concluded that the pilot countries with Product Activation experienced both Retail and Open license revenue increases. Specifically, Microsoft calculated for sales to small organizations and consumers, its Retail and Open license channel sales increased by ____ and ____ greater, respectively, in the pilot countries with Product Activation than in the "top tier" countries that did not have Product Activation.[83] When viewing small organization sales only, Microsoft calculated Retail and Open license sales increases that were ____ and ____ higher, respectively, in pilot countries with Product Activation than in the "top tier" countries without Product Activation.[84]

- January 2001 – Internal Microsoft Correspondence – Internal Microsoft correspondence summarizing Product Activation to newly appointed Product Activation "Champions" within various Microsoft subsidiaries describe its effectiveness in reducing casual copying. Specifically, this correspondence refers to the pilot program, stating that "Product Activation has been successfully launched already…. it has reduced piracy and dramatically increased both FPP and Open Revenues."[85]This document shows that in early 2001 Microsoft believed that Product Activation had been shown to be effective in reducing casual copying and increasing revenues.

- Other internal Microsoft documents describe analyses of the pilot study that showed that Microsoft's retail revenues experienced incremental revenue growth of ____ to ____. These revenue growth estimates were used by Microsoft in determining whether or not to implement Product Activation worldwide in its Office and Windows products. For example, internal Microsoft correspondence describes how analysis of the pilot study showed ____ to ____ growth [due] to ORW [Office Registration Wizard] alone" and

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[78] MS-U 918986 – MS-U 918987.
[79] MS-U 923986.
[80] MS-U 923985.
[81] MS-U 010685 – MS-U 010711, at MS-U 010690.
[82] MS-U 010702.
[83] MS-U 010702. The "top tier" countries were those with the "highest revenue" to Microsoft in markets that were considered "mature" in that they had the "highest infrastructure." These countries include France, Germany, the United States, the United Kingdom, and Japan. See MS-U 010702, MS-U 010710.
[84] MS-U 010702.
[85] MS-U 501812.

described how these revenue growth rates were used to "sell" European small organization managers on including Product Activation in Microsoft's products.[86]

In 2001, Microsoft attributed revenue increases of between approximately   and   o Product Activation. For example:

- January 2001 – "Product Activation Workshop" Presentation – This internal Microsoft presentation describes Product Activation as "Intellectual Property Protection" that "prevents casual copying, encourages license awareness."[87] This presentation also describes the results of the pilot study of Product Activation, stating that the pilot showed "revenue increase in all subs," including small organization revenue growth (including both Retail and Open license channels) of   due to Product Activation.[88] This presentation also includes details of the analysis conducted by Microsoft that calculated revenue increases of   to   due Product Activation. Specifically, this presentation shows that Microsoft calculated a   difference in the revenue growth from Q2 FY 2000 to Q2 FY 1999 in its Retail and Open channels in pilot countries when compared to the revenue growth in non-pilot countries that did not have Product Activation in these quarters. The   revenue growth was calculated in the same manner, but comparing revenue growth rates from Q3 FY 2000 to Q3 FY 1999.[89]

- February 2001: "Office XP Product Activation Review" Presentation – A February 2001 presentation entitled "Office XP Product Activation Review" describes the goals of Product Activation and its effectiveness in reducing casual copying.[90] The stated goal of this presentation was to provide Mr. Steven Sinofsky, Microsoft's Senior Vice President for Office, with "an end-to-end look at product activation."[91] The presentation describes the impact of Product Activation on "reduc[ing] casual copying by limiting installs on diverse HW [hardware]."[92]

  In addition, this presentation also quantifies the effectiveness of Product Activation in reducing casual copying losses and increasing revenues. Specifically, while it was "too early" to determine the effectiveness of Product Activation in "published piracy rates," the presentation states that there is "quantified evidence of effectiveness" of Product Activation. This "quantified evidence" was based on the results of a pilot study of Product Activation on Microsoft's Office software product in seven countries prior to the worldwide launch of Product Activation across its other product lines.[93] According to the

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[86] MS-U 949914.

[87] MS-U 00905422 – MS-U 00905474, at MS-U 00905424.

[88] MS-U 00905444.

[89] MS-U 00905446. The   amounts reflect the revenue growth attributed to Product Activation for both Retail and Open sales. For Retail sales only, Microsoft calculated that Product Activation was responsible for revenue growth of   For Open license sales only, Microsoft calculated that Product Activation was responsible for revenue growth of

[90] MS-U 010112 – MS-U 0101132.

[91] MS-U 010113.

[92] MS-U 010114.

[93] The deposition testimony of Mr. Allen Nieman indicates that "quantified" means "measured," i.e. that Microsoft "measured" the revenue increases due to Product Activation. See Deposition of Allen Nieman, July 12, 2005, pp. 161 – 163.

presentation, this pilot study showed that countries with Product Activation experienced greater revenue growth compared to countries that did not. Specifically, the presentation states that the countries with Product Activation showed small organization revenue growth of   higher than those countries that did not have Product Activation.[94] Moreover, the presentation describes how the pilot study found that the percentage of activations that were denied through Product Activation resembled the estimated piracy rates in the pilot countries.

In addition to this quantifiable evidence, the presentation also discusses "qualified" evidence of the effectiveness of Product Activation.   This includes "channel feedback of increased customer sales" and "channel and customer feedback of increased awareness."

- October 2001 – Internal Microsoft Correspondence – In an analysis comparing sales of Office 2000, which did not include Product Activation, with sales of Office XP, a Microsoft employee found that:

> In addition, because [Office] 2000 does not have Activation Wizard we are, in effect, allowing casual copying to continue. System Builders will continue to ship 2000 and will continue to casually copy our product. Since   of our business is not moving to [Office] XP, I suspect there is a material quantity of "downstream" licenses of Office I'm not selling. AW [Activation Wizard] would "put a plug" in this lost revenue.
>
> I thought it interesting at the WW SBC meeting that you cited the success of AW on other versions of Office 2000 (Academic) and in other geographies. This clearly supports the notion we got incremental revenue on Office 2000 by employing AW technology….That also implies we continue to lose revenue in the System Builder channel because we're still selling [Office] 2000 without AW."[95] (emphasis added)

By late 2001, Microsoft generated an analysis of the additional revenues resulting from Product Activation. Internal Microsoft correspondence indicates that this analysis was completed about September 2001.[96] This analysis stated that there was a revenue increase of   due to Product Activation. For example:

- December 2001 – Internal Microsoft Correspondence – In discussing the impact Product Activation had on "achieving our original goal (added revenue through reduction of casual copying)," Ms. Cole explained "the decision to go ww [Worldwide] with office and windows [Product Activation] was based on results from the office [sic] 2000 pilot which showed a   revenue increase based on comparisons to country results with

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[94] The   increase in revenue growth was calculated by Microsoft from the results of the same pilot study that Microsoft previously concluded showed a   revenue growth. Details of how Microsoft determined the   revenue growth increases are described in other Microsoft presentations discussed in this section of my report.

[95] MS-U 153739 – MS-U 153743, at MS-U 153742 – MS-U 153743.

[96] See MS-U 155187.

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activation and those without activation."[97] These analyses concluding a   increase were purportedly prepared by the Office Finance group within Microsoft and used different methodologies to quantify the revenue increases due to Product Activation. The new analyses concluded that Product Activation showed a   increase in Open license revenue and "small FPP upside" of approximately 4% to 5%.   These later studies characterized the prior results of a   increase in revenues as being a "one time bump only" and "not over time."

iii.   Post-2001 Product Activation Analyses

After 2001, Microsoft's documents do not refer to additional studies of revenues derived from the use of Product Activation. Instead the analyses become more general or simply confirm the earlier study. For example,

- February 2002 – Internal Microsoft Correspondence – Internal Microsoft correspondence from Mr. Bill Landefeld, Microsoft's former Vice President of Worldwide Licensing and Pricing, to Mr. Steven Ballmer, Microsoft's Chief Executive Officer, "clarif[ied] issues about Product Activation (PA) that came up during several mid-year reviews."[100] Specifically, Mr. Landefeld confirmed to Mr. Ballmer that Product Activation was generating incremental revenues in response to the question: "Is PA Having Positive Revenue Impact?" Specifically, Mr. Landefeld stated:

  > We are where we are today with PA due to the results of the Office 2000 pilot where we were able to show revenue upside. With the Office 2000 pilot we were able to make comparisons between pilot and non-pilot countries. Analysis by Office Finance determined a sustained revenue increase due to activation.[101] (emphasis added)

  This document indicates that Microsoft concluded from the results of the pilot study that Product Activation was responsible for a sustained increase in revenues due to its ability to deter casual copying.

- June 2002 – Internal Microsoft Correspondence – In preparing to discuss the costs and benefits of Product Activation in a Microsoft "BPR" (Business Process Reengineering) meeting, Ms. Cole stated, "Please be aware that because of a pending patent infringement case we're prohibited from talking about revenue upside due to PA[Product Activation]."[102] In addressing the question "are we increasing revenue with PA?" Ms. Cole wrote that:

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[97] MS-U 147901.

[98] MS-U 463030. See also MS-U 009735 – MS-U 009762.

[99] MS-U 463030. The change in the analysis of the effect of Product Activation of Microsoft's sales may be related to other issues. For example, during this period, Microsoft became a party to a patent infringement suit by Intertrust. Specifically, I understand that in April 2001, Intertrust filed suit alleging that several Microsoft technologies, including Product Activation, infringed certain of its patents. See, for example, MS-U 936309 – MS-U 936312.

[100] MS-U 489186 – MS-U 489187.

[101] MS-U 489186 – MS-U 489187.

[102] MS-U 488845.

> We have some anecdotal data in the sale of "Additional Licenses" for Windows pilot that we're doing in the US. When a customer tries to activate on multiple PCs in their home and is rejected they are offered an additional license for a slight discount. <u>Of the people in this situation   agree to purchase. This is incremental revenue that we would not have seen before PA and is an indication of customer behavior that could be extrapolated ww [worldwide] and across products.</u> (they [sic] are willing to go and buy additional licenses if the process is easy and price is right).[103] (emphasis added)

- June 2002 – Internal Microsoft Correspondence – Separate correspondence in June 2002 involving Ms. Cole discusses casual copying and the impact of Product Activation on increasing revenues for Microsoft in Japan. In discussing sales of Microsoft Office in Japan, Mr. Patrick Lung of Microsoft estimated that for "the first time in MS that we have an accurate measurement of casual pirating at   If we use the forwarding [sic] looking run rate of 2.0 mil [of activations] per year…the casual pirating rate is   in Japan. Guess what, the   BSA piracy rate…is right on!"[104] Mr. Lung also estimated that these "casual pirating" rates result in lost revenue of   million per year for Microsoft in Japan alone.[105]

- June 2002 – Microsoft Software Licensing & Protection Proposal – In a proposal discussing implementing an industry standard software licensing protection program, Microsoft states that "an interesting sidelight from the BSA's most recent study is an apparent reduction in piracy rates among those countries which participated fully in Office 2000 product activation."[106] This further evidences the effectiveness of Product Activation in reducing piracy and casual copying. Moreover, this proposal characterizes Product Activation as a "core competency" of Microsoft.[107]

3. Effect of Product Activation on System Builder / Non-Royalty OEM Sales

Microsoft documents indicate that it was concerned about piracy through the System Builder OEM channel. These documents suggest that System Builders often purchased a single copy of windows and copied it onto many new PCs that were built for a single customer. Other documents suggest that System Builders often copied "ghosted" images of hard drives with properly licensed software onto new systems, without obtaining proper licenses for these additional copies.[108] These processes are typically referred to as "hard-disk loading."[109]

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[103] MS-U 488845. Ms. Cole's statements regarding the   customer conversion rate and how this percentage could be extrapolated worldwide and across products is repeated in a February 2002 internal correspondence with Mr. Bill Landefeld, Microsoft's former Vice President of Worldwide Licensing and Pricing. See MS-U 489186.

[104] MS-U 488758 – MS-U 488759.

[105] MS-U 488758 – MS-U 488759.

[106] MS-U 464097.

[107] MS-U 464112.

[108] See for example, MS-U 00338452 – MS-U 00338464, at MS-U 00338454, MS-U 00338457, MS-U 00338462.

[109] MS-U 208511.

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To date, I have not reviewed any study by Microsoft specifically focused solely on the effects of
Product Activation on sales of Windows and Office in the System Builder channel. Most often it
appears that sales into the System Builder channel were considered with increases in sales to
Small Organizations, or SORGs, which would include the System Builder/Non-Royalty OEM
channels. For example, Mr. Allen Nieman, Microsoft's group manager of licensing channel
strategy testified that "SORG" sales included the retail and system builder segments.[110]

Numerous Microsoft documents discuss the impact of software piracy on its System Builder
channel and the impact that Product Activation was expected to have on reducing its revenue
losses from piracy in this channel. For example, a November 2000 Microsoft presentation by
Mr. Nieman estimated that Microsoft was losing more than $2 billion per year "in piracy losses
in System Builder channel." The presentation goes on to note that "industry and internal piracy
reports estimate significant casual copying of OS upgrades among retail customers."[111] Other
Microsoft documents confirm these amounts, stating that "according to Microsoft estimates, two
billion dollars in revenue are lost each year due to piracy of operating systems through system
builder abuses and consumer casual copying."[112] In addition, this document describes the
"business justification" for Product Activation as "the potential to re-capture a fraction of the
enormous revenue lost to piracy, especially in the System Builder and retail channels.[113]
Accordingly, Microsoft expected that Product Activation would have a direct impact on revenues
from at least both its retail and system builder channels.

As noted above, Microsoft's pilot study of the effectiveness of Product Activation focused on
increased revenues in small organizations, or SORGs, including its Retail and Open license
channels. The October 2000 "Office Activation Wizard" presentation "highlights" that all seven
countries experienced revenue increase after Product Activation was implemented. In addition,
it states that the pilot countries experienced SORG Retail and Open license revenue growth of
        due to Product Activation.[114] Similarly, the Office XP Product Activation Review
presentation made to Mr. Sinofsky in February 2001 indicates that Product Activation resulted in
"SORG revenue growth of   and that the "
            "[115]

> 4.   *Survey and Industry Evidence Regarding Product Activation and the Impact of*
>   *Software Piracy and Casual Copying on Microsoft's Business*

A Microsoft survey conducted in March 2001 related to the Office Registration Wizard indicated
that   of respondents typically purchased a copy of productivity software for each of their
PCs.   This is consistent with Microsoft's estimated   piracy rate. Approximately   of
business customers in the survey indicated that they typically purchased one license for every

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[110] Deposition of Mr. Allen Nieman, July 12, 2005, p. 189 – 190.
[111] MS-U 098527 – MS-U 098536, at MS-U 098528.
[112] MSI105531. This $2 billion amount reflects losses for Windows only, and does not include any losses from
piracy of Microsoft's Office products.
[113] MSI105540.
[114] MS-U 002400 – MS-U 002401.
[115] MS-U 010116.
[116] MS-U 021639 – MS-U 021681, at MS-U 021649.

PC.[117] This suggests a piracy rate among business users of   . The survey noted that "most customers will abide by the new registration requirement.…Thus, the ORW should help Microsoft reduce piracy among the home and small business segments."[118] This survey also indicates that the small business segment offers a greater opportunity for Multiple Office 2000 sales than the home market because "1) its higher average number of installed PCs (2.5 vs. 1.6); and 2) its greater tendency to purchase licenses for every PC."[119]

In addition, according to a February 2000 study of U.S. consumers prepared by Merrill Research & Associates, in   of cases where unauthorized copies of PC application software were made or borrowed, respondents said that they would have purchased the software if copying were not an option.[120] This independent survey suggests that anti-piracy technologies such as Product Activation could be effective in converting "casual copiers" of PC application software, such as Office, into paying customers.

Analyst reports on Microsoft also estimate the revenue losses caused by software piracy and casual copying the company. In addition, they discuss the impact that Product Activation was expected to have on reducing casual copying and increasing revenues. For example:

- July 2001 – Prudential Financial – A Prudential Financial research report shortly after Microsoft launched the infringing Product Activation system described the impact of software piracy on Microsoft's revenues. This report summarized the findings from the BSA, and concluded that:

    > If software piracy were to be completely stamped out, this would likely have a significantly positive impact on Microsoft's revenues in desktop applications and platforms. The estimated 59% of incremental revenues lost implies that Microsoft will lose approximately $4.5 billion in the current fiscal year from Office piracy alone. This $4.5 billion estimate assumes that 37% of Office products are pirated and that Microsoft could convert all pirated users to paying users. These lost revenue assumptions may be conservative, as Microsoft estimates the piracy rate of Office to be close to 50%. Either way, the potential impact on Office revenues is obvious.

    > However, despite a significant increase in effort by the BSA, software piracy prosecution appears to be an ongoing, losing battle, as it takes significant time and effort to prosecute these offenders.

    > However, we think a better solution is coming in the new versions of Office and Windows. In both cases, Microsoft will require online activation of the programs. This online activation will likely

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[117] MS-U 021649.

[118] MS-U 021650.

[119] MS-U 012649. The survey indicates that 4% of respondents received Office 2000 as a "gift" or copied it from a friend. However, it was noted that since Microsoft was identified as a sponsor of the survey, respondents may have been biased against admitting any improper usage.

[120] "Software Studies Size Up Impact of Piracy on Market," *TWICE: This Week in Consumer Electronics*, Vol. 15, Issue 11, p.88, April 28, 2000.

significantly reduce the number of pirated copies of Microsoft Office over time. While existing pirated copies of previous versions of Office will likely not be eliminated, anyone who wants to upgrade to the newer versions of the software will be required to register online, forcing them to acquire the programs legally. A large reduction in piracy could have a significant impact on the revenue growth of Office.[121] (emphasis added)

- December 2001 – Buckingham Research – According to Buckingham Research, in 2001 Microsoft reported that while there were approximately 250 million Office users worldwide in 2001, it estimated that only 150 million of these users had legal copies of Office. Analysts, on the other hand, believed that "the number of illegal copies of Microsoft Office being used [was] even higher than the 100 million estimated by the company."[122] These analysts also stated that Microsoft's recent development of Product Activation would help to "dramatically lower piracy levels" and force a "meaningful number" of consumers to purchase legal copies.[123]

- April 2002 – Morgan Stanley – In an April 2002 report on Microsoft, Morgan Stanley estimated that annual global software piracy revenue losses were $11 billion, with Microsoft products representing a "large share." Moreover, in discussing the "stock catalysts" that were impacting Microsoft's share price, Morgan Stanley described how "success in stamping out piracy is a positive."[124]

- April 2003 – Credit Suisse – In an early 2003 report, Credit Suisse stated that Microsoft estimated that there were currently 125-150 million pirated copies of Office in use. Credit Suisse stated that:

> To the extent that it can crack down on piracy, the company can generate significant incremental revenue. It has take some steps such as product activation, which limits the number of installations of a piece of software (primarily retail/shrink wrap) to the number licensed.[125]

- September 2003 – Wachovia Securities – In discussing Microsoft's business, Wachovia described the impact of software piracy in a section entitled "Software Piracy is Costing Billions In Lost Revenue." This section stated that Microsoft reported that "125-150 million copies of Office have been pirated" and that Microsoft "is attempting to reduce the illegal copying of its software through its product activation technology." Credit Suisse described Product Activation as a technology that prevents "Windows XP or Windows Office from being illegally copied and installed onto multiple PCs," concluding that "if the product activation technology is successful, it could help to reduce the illegal copying of its core desktop platform."[126]

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[121] Prudential Financial Report on Microsoft, July 13, 2001, p. 47.
[122] Buckingham Research Group Equity Report on Microsoft, December 20, 2001, p. 9.
[123] Buckingham Research Group Equity Report on Microsoft, December 20, 2001, p. 9.
[124] Morgan Stanley Report on Microsoft, April 19, 2002, p. 2.
[125] Credit Suisse Report on Microsoft, April 29, 2003, p. 26.
[126] Wachovia Securities Report on Microsoft, September 16, 2003, p. 20.

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publicly available financial records to estimate the profitability of these products. According to Microsoft's annual reports, it earned gross overall profits of more than 82% from July 2001 through June 2006.[138] Internal Microsoft estimates state that its "net profits from incremental revenues" are   [139] Accordingly, I have assumed that Microsoft would earn incremental profits of   on the incremental revenues from Product Activation. As shown on Exhibit G, applying Microsoft's estimated incremental profit percentage of   to these incremental revenues results in incremental profits of   During this period, Microsoft had approximately 214 million activations from new licenses.[140] Accordingly, Microsoft earned approximately   of incremental profits for each infringing new license activation.

According to Microsoft's annual reports, it earned operating profits of approximately 60.0% in its operating segments that include products with Product Activation, such as Windows and Office.[141] As shown on Exhibit G, applying Microsoft's operating profit percentage to its incremental revenues results in incremental operating profits of   million. Dividing this amount by the number of Microsoft's activations during this period results in $4.13 of incremental operating profits for each infringing new license activation.

Exhibit G-1 shows that applying a revenue growth rate of 35% to Microsoft's Retail and System Builder segment revenues results in incremental revenues due to Product Activation of $1.73 billion and $2.2 billion, respectively. In addition, applying a revenue growth rate of 35% to Microsoft's Open license revenues results in additional revenues of $3.1 billion due to the use of Product Activation. Accordingly, under the contemporaneous revenue growth assumptions, Microsoft's total incremental revenues from July 2001 through June 2006 from Retail, System Builder and Open sales amounts to $7.0 billion.

As shown on Exhibit G-1, applying Microsoft's estimated incremental profit percentage of 80% to these incremental revenues results in incremental profits of $5.6 billion. Dividing this amount by the number of Microsoft's activations during this period results in $26.76 of incremental operating profits for each new license activation. Exhibit G-1 also shows that applying Microsoft's operating profit percentage to these incremental revenues results in incremental operating profits of $4.2 billion. Dividing this amount by the number of Microsoft's activations during this period results in $20.10 of incremental operating profits for each new license activation.

These incremental revenues and profits provide the basis for determining the additional profits that Microsoft has earned from the use of Product Activation in excess of its normal returns from its infringing activities. Accordingly, they are instructive in determining a royalty for the use of the patent-in-suit, both under the analytical approach and hypothetical negotiation framework.

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[138] Exhibit C.
[139] MS-U 001807.
[140] Exhibit E.
[141] Exhibit D.

which the Court of Claims derived a reasonable royalty by comparing the infringer's operating profits earned from selling the infringing products with it normal profit rate. In both cases, the difference in the profits earned by the infringer from using the patented technology compared to not using the patented technology, or the "residual share of the gross profit … can be assigned to the patentee as its royalty."[158] In each of these cases the royalty rate accepted by the Court of Appeals for the Federal Circuit was the difference in profits between infringing and non-infringing activities. No further adjustment based on the Georgia-Pacific factors was done.

Similarly, in Hanson v. Alpine Valley Ski Area, the royalty awarded was based on the difference in the cost of using the infringing snow making equipment in comparison to non-infringing devices. Hanson was awarded one-third of the cost savings as a royalty.

The royalty rates derived from an analytical approach leave the infringer with a "normal" rate of return and provide the licensor with royalties equal to the excess profits or returns earned from the infringement. These comparisons can be to "normal" industry profit rates, excess profits earned from the sales of the infringing products in comparison to non-infringing products or industry rates of return. The difference between the normal rate of return and that earned from the sale or use of the infringing product or activity reflects the economic value of the use of the patented technology, from which a reasonable royalty can be derived.

Because the patented technology reduces casual copying , it results in additional revenues and profits to Microsoft. I am not aware of any specific benefits to consumers or end users of Microsoft's software applications due to the presence of the patented technology. In preparing my "analytical approach" analyses, I have evaluated the amount of additional revenues that Microsoft has earned from the use of Product Activation. The additional profits earned by Microsoft on these incremental sales represent the economic contribution of the patented technology.

My analysis of Microsoft's incremental revenues from Product Activation is focused on additional revenues resulting from Microsoft's Retail , System Builder and Open license sales channels. As noted above, Microsoft's analysis of the effects of Product Activation concluded that eliminating casual copying resulted in increased retail sales as well as additional sales to small businesses through its Open channel. Applying revenue growth rates based on Microsoft's own estimates of the incremental revenues attributable to Product Activation, I have computed the amounts that Microsoft earned over and above its normal returns using the "excess earnings" and Discounted Cash Flow analyses. The resulting earnings represent the royalties that Microsoft would be willing to pay for a license to the '216 patent and still earn its normal profits after providing returns on its investments in Product Activation and compensating its equity holders. The discussion below describes each of these analyses, the related inputs and the resulting royalties.

>   1. *Royalty Rate Based on Excess Earnings Approach Derived from Use of '216 Technology*

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[158] Tektronix, Inc. v. The United States et al., 552 F2d 343 (Ct. Claims 1977). See also Hanson v. Alpine Valley Area, Inc., 219 USPQ 679 (Fed Cir 1983).

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to Product Activation. These exhibits show that applying the   Open license revenue growth rates derived by Microsoft results in additional revenues of between $883.2 million to $3.1 billion due to the use of Product Activation. In addition, I have applied revenue growth rates of   to estimate the growth in Microsoft's FPP segment revenues due to Product Activation. This results in additional revenues of between $256.4 million and $1.7 billion. I have applied revenue growth rates of   to estimate the growth in Microsoft's System Builder segment revenues due to Product Activation. This results in additional revenues of between $330.0 million and $2.2 billion. Accordingly, Microsoft's total incremental revenues from Product Activation amount to between $1.5 billion to $7.0 billion. This wide range is a function of differences in Microsoft's estimates of the increase in revenues attributable to Product Activation.

According to Microsoft's annual reports, from July 2001 through June 2006, it earned operating profits of approximately 60.0% in its operating segments that include products with Product Activation, such as Windows and Office. These costs include direct manufacturing costs, selling and marketing expenses, and research and development expenses. Included in these expenses are the costs associated with operating the call center and licensing technologies departments within Microsoft. From these profits, I have also deducted the taxes that Microsoft would have paid on the profits it would earn from these incremental revenues.

Because these net profits are calculated solely on Microsoft's incremental sales due to Product Activation, these net profits are entirely attributable to the use of the infringing Product Activation system. The established case law deducts "normal returns" and I have therefore deducted Microsoft's normal weighted average cost of capital of 14% from the excess returns attributable to the product. By making this deduction, I am ensuring that Microsoft is credited with its normal rate of return from additional sales due to Product Activation. In addition, this deduction provides returns for the use of other intangible and tangible assets within Microsoft related to the operation of the infringing Product Activation system that may not have been already considered separately.

The Excess Returns methodology also considers that in order to earn these additional profits, Microsoft had to make certain investments in "additional" or "contributory assets" in order to run the accused system. By deducting returns on these "additional assets" the Excess Returns methodology results in the amount of the remaining earnings that would be due to the intangibles, in this case the '216 patent.

To date, Microsoft has not provided budgets or other documents that show all of the costs the company incurred in the development and operation of the "additional assets" necessary to run the Product Activation system. As is the case with most software developers, these costs are "expensed" as incurred and not retained on the balance sheet as capitalized assets. As a proxy for the values of the "contributory assets," I have used the amounts of expenses incurred based on Microsoft's accounting records related to Product Activation and "capitalized" them to derive values for the "additional assets." Based on the documents available, it appears that the relevant "contributory assets" include:

developed anti-piracy and activation technologies. It was acquired by Symantec in May 2005.[183]

According to the terms of the agreement, Uniloc granted XtreamLok a non-exclusive license to make, use and sell inventions described in the '216 patent in connection with the "manufacture, sale, use, promotion or distribution" of XtreamLok's software products. In exchange for the license, XtreamLok agreed to pay Uniloc a royalty of 1% of its net sales of licensed products.

- Uniloc – Curious Software – On May 17, 2004, Uniloc and Curious Software Company Limited ("Curious") entered into a license agreement for Uniloc's proprietary SoftAnchor software.[184] According to the terms of the agreement, Uniloc granted Curious a worldwide, non-exclusive, non-sublicenseable and non-transferable license to incorporate the source code for Uniloc's SoftAnchor product into Curious' software products. In exchange, Curious agreed to pay Uniloc royalties of   of the revenues earned from sales of products incorporating Uniloc's technologies with list prices in excess of   and royalties of   of the revenues earned from products with lists prices below   . Curious also agreed that it would make minimum royalty payments of   per product that incorporated Uniloc's technologies. In addition to the payments above, Curious also agreed to pay Uniloc royalties ranging from   on revenues it received from maintenance and support services.

- Uniloc – MidNet – On May 27, 2005, Uniloc and MidNet, Inc. ("MidNet") entered into a license agreement for Uniloc's "patented license management software with machine locking functionality, which restricts the operation of software applications to specific machines based on unique machine identifiers."[185] According to the agreement, MidNet planned to offer its customers the ability to "identify and authenticate all Devices [personal computers] on the Middle Network" and "securely limit data and content transfer to only those Devices that are registered and authenticated on the Middle Network, all for purposes of allowing or disallowing secure communications from one Device to another on the Middle Network."[186] Uniloc granted MidNet a non-exclusive license to its proprietary netAnchor software, including the patents and other intellectual property rights "underlying or encompassing the Uniloc Software." According to Mr. Brad Davis, Uniloc Chief Executive Officer, Uniloc's NetAnchor product practices the technologies described in the patent-in-suit.[187]

In exchange, MidNet agreed to pay Uniloc the below royalties on each Device authenticated with Uniloc's technologies:

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[183] http://www.itnews.com.au/News/22952,symantec-acquires-xtreamlok.aspx.
[184] UNILOC 32546 – UNILOC 32554.
[185] UNILOC 32567 – UNILOC 32583.
[186] UNILOC 32567.
[187] Deposition of Brad Davis, July 19, 2005, pp. 71 – 72.

Total Number of Devices Authenticated on Middle Network During the Term	License Fee Payable With Respect to Each Device Authenticated
Fewer than 3,000,000 Devices	Per Device
3,000,000 – 5,999,999 Devices	Per Device
More than 5,999,999 Devices	Per Device

The rates above were "based on the assumption that MidNet will charge its Customers per each Device authenticated via netAnchor."[188] Accordingly, the royalties received by Uniloc for the use of its patented machine locking technologies represent between   of the incremental revenues received by MidNet per authentication.

The agreements with XtreamLok, Curious and MidNet show that Uniloc has licensed the '216 patent and software programs embodying the '216 patent on a running royalty basis. These royalties have been measured either as a percentage of sales, or on a per-unit or per activation.

In addition to these licenses, Uniloc also has entered into several agreements for the '216 patent in settlement of litigation. Since these agreements were in settlement of pending litigation, I understand that the royalty rates and payments in these agreements may not be probative of those that would have been negotiated in an arms-length negotiation for the use of the patent-in-suit. Moreover, I note that almost all of these agreements were reached at a time when the '216 patent had been determined to be non-infringed, pending appeal. Thus, the licensees in these agreements likely did not share the assumptions regarding validity and infringement that would have been present in the hypothetical negotiation with Microsoft in March 2001.   Accordingly, the royalty rates in these agreements are not comparable to those that would have resulted from an arms-length negotiation for the patent-in-suit where validity and infringement are assumed.[189]

Overall, this Georgia-Pacific factor would favor Uniloc during the hypothetical negotiation.

Georgia-Pacific Factor 2 - The rates paid by the licensee for the use of other patent comparable to the patent in suit.

I have not been provided with any patent license agreements executed by Microsoft for technologies comparable to those claimed in the '216 patent. Exhibit K summarizes the licenses Microsoft has taken that were produced in this matter. The majority of these agreements relate to technologies such as keyboards, modems, speech coding software, and fax service provider software. These technologies are either unrelated to, or not comparable with, the technologies described in the patent-in-suit. As such, they provide little guidance as to the rates Microsoft has paid for comparable technologies under Georgia-Pacific Factor 2.

There are certain agreements listed in Exhibit K that are for products and software related to anti-

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[188] UNILOC 32582. In the event that MidNet charged its customers more than $4.00 per authentication, the parties agreed that "the rates set forth above shall be increased proportionately."
[189] *Mondis v. LG Electronics*., 2-07-cv-00565 (E.D.T.X. June 14, 2011, Order) (Everingham, M.J.).

	CONTEMPORANEOUS ESTIMATES	LATER ESTIMATES
EXCESS EARNINGS APPROACH		
Reasonable Royalty Rate	$11.37	$2.21
Infringing Activations	283,404,811	283,404,811
Uniloc's Reasonable Royalty Damages	$3,222,312,703	$626,324,632
DISCOUNTED CASH FLOW APPROACH		
Reasonable Royalty Rate	$12.70	$2.62
Infringing Activations	283,404,811	283,404,811
Uniloc's Reasonable Royalty Damages	$3,599,241,100	$742,520,606

The below table summarizes Uniloc's reasonable royalty damages under the Hypothetical Negotiation Approach:

Reasonable Royalty Rate	$4.00
Infringing Activations	283,404,811
Uniloc's Reasonable Royalty Damages	$1,133,619,244
Minimum Reasonable Royalty Rate	$2.21
Infringing Activations	283,404,811
Uniloc's Reasonable Royalty Damages	$626,324,632

VII.   Post-Judgment Royalties

I understand that as an alternative to imposing an injunction, the Court may impose post judgment royalties. This opinion does not specifically analyze the amount or terms of such royalties. To the extent the Court or the parties seek a separate determination of the appropriate amount and terms of a post-judgment royalty, I may supplement or amend my analysis as necessary.